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Elina A. Genina
Irina Yu. Goryacheva
Valery V. Tuchin
Editors

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Sean J. Kirkpatrick, Michigan Technological University (United States)

4 Plenary Session Internet Biophotonics IV
Valery V. Tuchin, Saratov National Research State University (Russian Federation) and National Research Tomsk State University, (Russian Federation) and Institute of Precision Mechanics and Control, RAS (Russian Federation)

5 Plenary Session V
Herbert Schneckenburger, Aalen Universität (Germany)

Introduction

The 5th International Symposium on Optics and Biophotonics (Saratov Fall Meeting: SFM17) was held in Saratov, Russian Federation, 26–30 September 2017 with over 500 participants from the Russian Federation, United States, Canada, Europe, Asia, and Pacific Ocean countries. It covered a wide range of modern problems of fundamental and applied optics, laser physics, photonics, and biomedical optics.

This volume includes selected papers from the following conferences and workshops organized in the framework of the Symposium:

Optical Technologies in Biophysics & Medicine XIX
Elina A. Genina and **Valery V. Tuchin** (*Chairs*)
Spectroscopy and Molecular Modeling XVIII
Lev M. Babkov and **Kirill V. Berezin** (*Chairs*)
Nanobiophotonics XIII
Nikolai G. Khlebtsov (*Chair*)
Microscopic and Low-Coherence Methods in Biomedical and Non-Biomedical Applications X
Kirill Larin (*Chair*)
Internet Biophotonics X
Alexey N. Bashkatov, **Ivan V. Fedosov**, and **Valery V. Tuchin** (*Chairs*)
Low-Dimensional Structures VII
Olga Glukhova (*Chair*)
Biomedical Spectroscopy IV
Vyacheslav I. Kochubey and **Alexander B. Pravdin** (*Chairs*)

The main attention was the discussion of fundamentals and general approaches to describing coherent, low-coherent, polarized, spatially, and temporally modulated light interactions with inhomogeneous absorbing media, low-dimensional structures, tissues, and tissue phantoms. Optical properties of various tissues measured *in vitro*, *ex vivo*, and *in vivo* as well as optical biopsy techniques were considered. Static and dynamic light scattering in tissues, Doppler, photo-acoustic and photo-thermal laser-tissue interactions, light-induced mechanical stress, and photodynamic effects also were considered. On this basis, the variety of laser and optical technologies for medical diagnostics, therapy, surgery, and light dosimetry, as well as for spectroscopy of random and ordered media were presented.

SFM17 was organized into morning plenary sessions, afternoon lectures and oral sessions, evening poster presentations, and Internet discussion. Plenary lectures delivered by leading experts in urgent fields of optical and laser life sciences were heard by the attendees with great interest, and discussed by the audience.

Plenary and invited lectures, oral, and poster presentations covered a wide area of tissue optics, spectroscopy and imaging, controlling of optical properties of tissues, as well as biophysical and photo-chemical aspects of photo- and laser therapy.

In the framework of the Symposium, a competition for the Best Student Poster Award was organized supported by the SPIE FOCUS Program. "Comparative study of human blood Raman spectra and biochemical analysis of patients with cancer" [10716-104], was one such winner and you may find their manuscript in this volume.

The traditional Saratov Fall Meeting-specific feature was the Internet Session and one-day online discussion. In 2017, this Internet session included 4 plenary lectures, 25 invited lectures and 19 presentations. The papers by participants from the United States, the Russian Federation, Denmark, Germany, Netherlands, Ireland, Italy, Finland, Poland, Israel, China, etc., are located at the meeting website: http://sfm.eventry.org/symposium2017/internet. They were made available during the meeting and will continue to be available until the meeting next year.

It is with great pleasure and privilege that the editors thank all of authors for their contributions to the Symposium, especially to the plenary, invited, and Internet lecturers for their exciting presentations.

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